Description

Lifting device

The invention relates to a lifting device having a top part and a bottom part, having a lifting linkage which connects the top part to the bottom part and has at least two sub-linkages connected to one another via a central articulation, and having a drive unit for adjusting the height of the top part.

Such lifting devices are known from the prior art. Thus, for example, WO 98/46137 discloses such a lifting device for adjusting the height of a patient support. In this case, parallelogram structures are used as lifting linkages. The disadvantage with the known structures is that they require a comparatively large amount of installation space. Furthermore, particularly large forces are necessary for height adjustment and these forces, in addition, are not constant. It is also the case that different displacement speeds arise during the height adjustment. The known solutions, in other words, are too large, involve too much design outlay and require excessively complicated control means.

Further lifting devices for adjusting the height of a patient support are known, for example, from FR 2 780 638 A1, DE 201 18 952 U1 and US 2,975,868. All the documents describe devices in which a drive unit acts on a scissors articulation in the center of a lifting linkage.

In view of the above, it is an object of the present invention to provide a particularly straightforward lifting device. This object is achieved by a lifting device as claimed in claim 1 and a method as claimed in claim 8.

Accordingly, it is a basic idea of the invention to configure the lifting device such that the drive unit acts on a central articulation of a multi-part lifting linkage. This allows the lifting device to be of particularly straightforward and compact construction.

Advantageous embodiments of the invention can be gathered from the subclaims.

In a particularly advantageous embodiment of the invention, a scissors structure is used as sub-linkage.

Patent Claims

1. A lifting device (1)
   - having a top part (3) and a bottom part (2),
   - having a lifting linkage (4) which connects the top part (3) to the bottom part (2) and has at least two sub-linkages (5, 6) which are connected to one another via a central articulation (16) and are designed as scissors structures, and
   - having a drive unit (12, 14, 15, 19) for adjusting the height of the top part (3),

   characterized in that the drive unit (12, 14, 15, 19) acts laterally on the central articulation (16) such that the latter, and thus the lifting linkage (4), can be displaced in the vertical direction, the lifting linkage (4) being supported on the bottom part (2) by way of spaced-apart scissors feet (7, 8) of the bottom sub-linkage (6).

2. The lifting device (1) as claimed in claim 1, characterized in that the drive unit (12, 14, 15, 19) has a spindle (15), which is fastened on the central articulation (16), and a motor (12, 19).

3. The lifting device (1) as claimed in claim 3, characterized in that the spindle (15) is a trapezoidal spindle.

4. The lifting device (1) as claimed in claim 2 or 3, characterized in that the motor (12) is fastened on the bottom part (2).

5. The lifting device (1) as claimed in claim 2 or 3, characterized in that the motor (19) is fastened on the central articulation (16).

6. The lifting device 1 as claimed in one of the preceding claims, characterized in that the sub-linkage (6) is connected to the bottom part (2) in an articulated manner by way of its front scissors feet (7) and is fastened on the bottom part (2) by way of its rear scissors feet (8) such that it runs over the bottom part (2) when the height of the top part (3) is adjusted.

7. A method of adjusting the height of a top part (3) of a lifting device (1) by means of a drive unit (12, 14, 15, 19), the top part (3) being connected to a bottom part (2) via a lifting linkage (4) and the lifting linkage (4) having at least two sub-linkages (5, 6) which are connected to one another via a central articulation (16) and are designed as scissors structures, characterized in that the drive unit (12, 14, 15, 19) acts laterally on the central articulation (16) such that the latter, and thus the lifting linkage (4), can be displaced in the vertical direction, the lifting linkage (4) being supported on the bottom part (2) by way of spaced-apart scissors feet (7, 8) of the bottom sub-linkage (6).